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ABSTRACT

Equations for the prediction of college grades from test scores and high school grades were compared for Mexican-Americans and other students at three universities of the California State University and Colleges system. With rare exceptions, regression equations for the prediction of grades for Mexican-Americans did not differ from those for other students at the freshman, sophomore, or junior level. The prediction of senior year grades did require different equations for Mexican-Americans, but the direction of the difference was reversed at the two universities involved. The need for separate prediction equations for Mexican-American applicants to college is not supported. Nevertheless, the modest size of the multiple correlation coefficients, usually in the range from .30 to .50, suggests that considerations other than test scores and prior grades should enter admission decisions. The few comparisons across universities did not indicate a need for different equations for different institutions, but a difference in grade distributions at the two institutions compared suggests that the question be examined again with more substantial data. Men and women differed in their prediction equations, although neither sex was consistently over or underpredicted. Men, however, almost invariably showed higher test scores and lower grades at all levels than did women. (Author)

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EDUCATIONAL TESTING SERVICE
PRINCETON, NEW JERSEY
BERKELEY, CALIFORNIA

PREDICTION OF COLLEGE ACHIEVEMENT AMONG MEXICAN-AMERICAN STUDENTS IN CALIFORNIA

Jonathan R. Warren

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Educational Testing Service
Berkeley, California
July 1976

Abstract

Equations for the prediction of college grades from test scores and high school grades were compared for Mexican-Americans and other students at three universities of the California State University and Colleges system. With rare exceptions, regression equations for the prediction of grades for Mexican-Americans did not differ from those for other students at the freshman, sophomore, or junior level. The prediction of senior year grades did require different equations for Mexican-Americans, but the direction of the difference was reversed at the two universities involved. The need for separate prediction equations for Mexican-American applicants to college is not supported. Nevertheless, the modest size of the multiple correlation coefficients, usually in the range from .30 to .50, suggests that considerations other than test scores and prior grades should enter admission decisions. The few comparisons across universities did not indicate a need for different equations for different institutions, but a difference in grade distributions at the two institutions compared suggests that the question be examined again with more substantial data. Men and women differed in their prediction equations, although neither sex was consistently over- nor underpredicted. Men, however, almost invariably showed higher test scores and lower grades at all levels than did women.

Acknowledgments

The study of tests in the college admission of Mexican-Americans reported here was initiated by a group of Mexican-American educators who met over a period of several months with representatives from the Berkeley office of Educational Testing Service. The purpose of the meetings was to identify research projects that would be likely to improve the representation of Mexican-Americans in higher education. Regular members of the group and their institutional affiliations at the time of the meetings, the late fall of 1970 and early spring of 1971, are listed below.

Ruben Pardo, California State University, Long Beach, CA

Angel Perea, Compton Junior High School, Compton, CA

Monte Perez, California State University, Los Angeles, CA

Alvaro Ramos, Pioneer High School, Whittier, CA

Anthony Salamanca, El Dorado Industries, San Francisco, CA

The analysis of bias in testing as a barrier to greater Mexican-American enrollment in higher education was selected as the most promising area of study. A study plan was developed and funds for carrying it out were provided by the College Entrance Examination Board. The director of the study in its early stages was Richard Reyes.

Prediction of College Achievement Among Mexican-American Students in California

Jonathan R. Warren

The small proportion of Mexican-Americans who enter college as compared with other Caucasians is an undisputed fact. As of October 1972, the number of college students of Spanish origin was about half what it would have been if they were enrolled in college in the same proportions as other Caucasians (U. S. Bureau of the Census, 1974). The reasons for that under-representation of Mexican Americans in college, however, are in dispute.

The bilingual world that many Mexican-American children have to deal with is clearly an educational problem not faced by most other Caucasian children. Yet the extent to which that educational barrier persists by the time a student has entered college has not been determined. Some residual effect may remain, but it has not been assessed. A second factor held by some to affect the education of Mexican-Americans is the variety of cultural differences between Mexican-Americans and other Caucasians (e.g., Heller, 1966). Yet the views of the Mexican-American culture as a hindrance to educational advancement have not been supported when examined closely. The presumed culturally induced effects such as low levels of aspiration, tendency to withdraw in the face of difficulty or possible failure, or poor self-image with respect to academic skills have not been found by other investigators (Carter, 1970; Zirkel, 1971; Edington, Note 1). A third factor, poor prior schooling resulting from racial bias, bilingual difficulties, and residence in impoverished school districts has also been held to be the cause of the low representation of Mexican-Americans in college. Each of the three factors

associated with poor schooling has existed to some extent and has probably interfered with the educational progress of Mexican-American students. But none of these has been studied sufficiently to be singled out as a major cause of the low Mexican-American representation in college. Finally, cultural bias in the process of admission to college has been believed by many to be the reason more Mexican-Americans are not in college (Flaugher, 1970; Nunez, 1970; Samuda, 1973). This fourth factor, the process of college admission among Mexican-Americans, and in particular the role of standardized admission tests and high school grades in the selection of Mexican-Americans for college entrance, is the focus of the present report.

The study reported here was initiated at the request of a group of Mexican-American educators in California, listed in the Acknowledgments, who were concerned about the underrepresentation of Mexican-Americans in college. They believed standardized tests to be not only a major barrier but an inappropriate, unjustified barrier to the college admission of Mexican-Americans. In spite of the effects on educational success of language problems, whatever cultural problems might exist, and poor prior schooling, they believed that Mexican-Americans could achieve in college in the same proportions as other Caucasians if psychological, cultural, and financial supportive services were available. On the campuses of the California State University and Colleges system, therefore, where supportive services were available, Mexican-American students might be expected to achieve as well as other Caucasians in spite of lower admission test scores. The present study was undertaken with the financial support of the College Entrance Examination Board to examine that expectation.

The problem of college admission

Superficially, college admission seems a simple, straightforward process. Those applicants are admitted who show reasonable promise of achieving an acceptable average grade level. The California state college system has been intended to serve the top one-third of the graduating high school seniors of the state with respect to predicted college grade-point average. Regression, or prediction, studies conducted initially on 1963 entrants to all colleges in the system (Wright, 1967) and later repeated have produced fixed eligibility standards for applicants to the system based on high school grades and scores on either the Scholastic Aptitude Test or the American College Test. For the 1974-75 academic year an Eligibility Index (EI) could be computed from either of the following equations (The California State University and Colleges, Undated).

$$EI = 800(GPA) + SAT$$

$$EI = 200(GPA) + 10(ACT)$$

In each equation GPA is the grade-point average for the last three years of high school, excluding physical education and military science, based on a scale on which A is 4.00. SAT is the combined Verbal and Mathematics scores of the Scholastic Aptitude Test; ACT is the composite score of the four subtests of the American College Test. For the SAT a minimum Eligibility Index for admission is 3072; for the ACT, 741. Applicants with high school GPA's lower than 2.00 are not admissible except under special procedures, and those with high school GPA's of 3.20 or higher are admissible regardless of their test scores.

This admission system assumes that prediction equations are comparable for all the 20 institutions in the system, that high school GPA's are comparable for all high schools throughout the state, and that prediction

equations do not differ among various applicant groups such as those based on sex, ethnic group, rural or urban or suburban background, or other applicant characteristics. These assumptions were acknowledged in an early study of the admissions process, and the further statement was made that ultimately separate prediction equations should be developed for different academic programs within individual colleges (The California State Colleges, 1969).

The essence of these assumptions is that a uniform admission standard for all types of applicants for all the institutions in the system and for all the programs in any individual institution is defensible. This is the view that is challenged by Mexican-Americans. The challenge is usually based on the belief that members of some particular group who are consistently lower on the Eligibility Index than the overall average may nevertheless, if admitted, achieve in college as well as or better than the average student. This argument was advanced by the group of Mexican-Americans who initiated the present study, but it could equally well be advanced by men in relation to women, since women consistently achieve higher high school grade averages than do men and therefore have higher eligibility indexes for the same test scores.

While considerations other than the prediction of college grades are pertinent to college admission practices, the prediction of grades is itself more complex than it seems at first glance. For example, errors of prediction may be greater for one group than for another. The size of the errors depends on the relation between the predictors and the criterion and on the variability of the criterion. Its measure is the standard error of estimate, which states the range on either side of the mean criterion score within which two-thirds of the persons will fall who were predicted to fall at the mean. Thus in predicting grades, a standard error of 0.5 indicates that about two-thirds of the students with the same predicted grade-point average will have actual GPA's

from half a grade below to half a grade above their predicted GPA. The other third will deviate from their predicted GPA by more than half a grade.

If the relationship between predictors and criterion, the correlation coefficient, is the same for two groups and is sufficiently high, small differences between the groups in the accuracy of the prediction equation, which would occur if the variability of the criterion differed for the two groups, would be acceptable. But the correlation coefficients achieved in the present study and in others using the same predictors rarely climb out of the neighborhood of .50 and are frequently much lower. With relationships at that level, differences between groups in the variances of the actual grades associated with any given predicted grade, that is, in the standard error of estimate, will seriously affect the interpretation of differences in predicted performance. For example, a difference between two levels of the Eligibility Index that would be associated with a substantial difference in performance within one group could be subject to too much error to permit any prediction of differences in performance to be made with confidence in the other group. More specifically, the selection of applicants having higher Eligibility Indexes may not produce students who will achieve at higher levels if consistently greater error exists in predicting the performance of the lower scoring applicants.

A second potential problem in selection based on the prediction of performance from fixed equations arises when the relationship between the predictors and performance is higher for one group than another. In technical terms, the slopes of the regression lines computed for the two groups differ. Mexican-Americans assert that present standardized tests, because of cultural biases, do not reflect the true capabilities of Mexican-Americans to the same extent that they do for other Caucasians. The relationship between standardized test scores and college achievement would therefore be lower for Mexican-Americans than for other Caucasians.

A third potential problem could arise if the achievement of one group was consistently higher or lower than that of another group even though the errors of prediction and the magnitude of the relationships were equal for the two groups. This occurs when regression lines are parallel but do not coincide. The analytic procedures of the present study compared prediction equations for Mexican-Americans and for other students with respect to each of these issues.

Design of the study

While the Mexican-American educators who initiated the study were concerned with the college entry of Mexican-Americans generally, they were most immediately concerned with the admission of greater percentages of Mexican-Americans to the California state college system, in which several of them were teachers or administrators. The usual problem of limited funds led to the selection for study of three of the institutions in the state system in which large numbers of Mexican-Americans were enrolled rather than assessing the performance of Mexican-Americans in the system as a whole. Each of the three is a large, complex university having a wide variety of programs. Within these three institutions, the grade-point averages of Mexican-American students in all four years of attendance were to be compared with those of other students as they would have been predicted by the combination of test scores and high school grades used to compute the Eligibility Index for admission. The grade-point average to be predicted is for a particular cumulative GPA as of completion of an advanced year. The predictions for each of the four years are concurrent, involving different groups of students during the same academic year rather than the same group of students in successive years.

The value of predicting grades for all four years from preadmission data is a point about which some disagreement exists. Ordinarily, once a student has been admitted and accumulated a record of college performance, that record is a better indicator of later performance than the pre-admission measures (Humphreys, 1968). For Mexican-Americans, who may enter less well prepared than other students and for whom special cultural and academic assistance is provided, early performance in college may not be indicative of later performance. Further, cultural support may be more important than academic performance in determining persistence in college, reducing the importance of early performance as a predictor of later performance. These points do not necessarily imply greater importance of pre-admission data for predicting advanced grade-point averages for Mexican-Americans than for other students, and the use of concurrent rather than sequential data does not permit examination of possible differences in the relationships between earlier and later college grades. Nevertheless, differences across ethnic groups may exist in the prediction of advanced grade-point averages from pre-admission measures that do not appear in the prediction of freshman grades. Differences in grading standards in different fields of study coupled with differences in the representation of ethnic groups in different fields would also be expected to produce differences in the predictability of upper-division grades that would not hold for freshman grades. Concurrent, or cross-sectional data for all four years were therefore examined.

The greater predictability of grades for women than for men (Kendrick & Thomas, 1970) suggested that prediction equations of Mexican-American and other students should be compared for men and women separately. With data for men and women and for each of the four years to be treated separately, eight comparisons were required. The comparison of prediction, or regression, equations for the three types of differences discussed earlier should be based on samples of about 100 persons for each of the equations compared. Two sexes, four academic years, and two categories of students--

Mexican-Americans and others--required a total sample of 1600 students in each institution if equations for each of the 16 groups were to be based on samples of 100 each. Because of probable differences in grading practices at the three institutions, pooling of data across institutions did not seem sensible even though a common equation is used for computing the Eligibility Index.

A complicating element in the study was the use of both the SAT and ACT admission tests in determining eligibility. If both tests were examined at each institution, data for 3,200 students at each institution would have to be examined. The total numbers of Mexican-American students would be barely sufficient to meet that requirement. In actuality, absence of either high school grades or test scores for substantial numbers of both Mexican-Americans and other students brought the total numbers available well below those desired. Upper-division students were available in sufficient numbers from only two of the three institutions, and lower-division data were not collected from one of them. All Mexican-American students for whom complete data were available were therefore used in the analyses. To avoid differences among student groups that might be due to differences in the year of college entry, the groups studied were seniors in 1970, juniors in 1969, sophomores in 1968, and freshmen in 1967.

Random samples of students other than Mexican-Americans were selected to provide comparison groups of 100 students in each category by sex and year in college. Missing data, however, reduced the numbers in those samples below the desired 100. Because of these reduced numbers, therefore, the most reliable comparisons are for those between the groups in which the sexes were combined, even though typical sex differences in both grades and test scores make that procedure questionable.

Mexican-American students were identified in two universities through lists of Spanish-surnamed students corrected by Mexican-American students who knew many of the students on the list. Thus some Mexican-Americans without readily identified Spanish surnames were added and some with Spanish surnames who were not Mexican-Americans were deleted. In the third institution identification was made through the students' self-reports on questionnaires completed at entry. In each of the three institutions the comparison samples were drawn randomly from all those not identified as Mexican-American.

Regression-equations for predicting college grades from a linear combination of high school grades and either the total SAT score or the composite ACT score were compared using the procedure developed by Gulliksen and Wilks (1950). In this procedure the dispersions of predicted grades above and below the calculated regression plane, that is, the standard errors of estimate, are compared for the two groups. If they differ significantly further comparisons have little meaning. If they do not differ, the slopes of the two regression planes, or the degree of the relationships between predictors and criterion, are compared. If the slopes do not differ significantly, the intercepts, or levels, of the two regression planes are compared. A difference in intercepts when neither dispersions nor slopes differ would indicate a constant difference between the two groups in the predicted grade-point average at all levels of the predictors.

The design and analysis of the study were thus directed to the question of the equivalence of the selection process in three institutions of the California State University and Colleges system for Mexican-Americans and other students. More specifically, the question asked was whether, for the two ethnic groups, predictions of college grades from a combination of high school grades and test scores are made with (1) comparable errors of prediction, (2) equal relationships between the predictors and college grades, and (3) equal grade levels for equal predictor levels. This third part of the question tests the belief of many Mexican-Americans that with adequate support Mexican-Americans will earn grades higher than those predicted for them.

Comparisons of regression equations

Comparisons among students in all classes were made at one university, freshman comparisons at a second, and junior and senior comparisons at a third. In Table 1 are shown the predictor and criterion means and standard deviations, multiple correlation coefficients, standard errors of estimate, and results of the significance tests of differences between groups in standard errors and in the regression plane slopes and intercepts for freshman men and women at the first two universities, with the ACT Composite score used as the test. The bottom two pairs of rows show the comparisons for men and women combined, comparisons that are consistent with the operation of the Eligibility Index in the California system.

Among the four comparisons of the sexes separately, three show no significant differences in the prediction of freshman grades from high school grades and ACT scores. The fourth shows the prediction equations for freshman men at University A differing in their slopes. The comparable comparison at University B shows no difference, and the first difference is associated with an unusually low multiple correlation (.13) among the group of non-Mexican-American men. Neither test scores nor high school grades correlated significantly with freshman grades for this group, with coefficients of .03 and .13 respectively. Combining the sexes to increase the sample sizes still produced nonsignificant results for University B.

For all four groups--men and women separately in each university--the Mexican-Americans showed lower test scores, lower high school grades, and lower college grades than did the corresponding groups of other students. For all four comparisons, the largest difference was in the test scores, with both sets of grades somewhat closer, suggesting a source of differences in

test scores that is not associated with grades. The Mexican-American groups also showed consistently greater variability in both grades and test scores than did the other student groups.

When similar analyses were carried out with the SAT as the admission test, small samples of freshman men at University B showed Mexican-Americans and other students to differ in the dispersions of their predicted grades above and below the regression plane, with the non-Mexican-American men showing the greater error of prediction (Table 2). The groups of women showed no differences, but the number of Mexican-American women was too small to provide a realistic comparison. When the sexes were combined the regression equations showed no significant differences.

Comparisons of prediction equations for sophomores at University A showed no significant differences (Table 3). The sample sizes were quite small, but when men and women were combined to produce somewhat larger samples, the differences were still not significant. The numbers of sophomores with complete data at University B were too few to justify a comparison, as were the numbers of sophomores with SAT scores at either university.

The prediction of upper-division grades showed mixed results (Table 4). Juniors at neither University A nor University C showed significant differences between ethnic groups in the prediction equations. For grade-point averages of seniors, prediction equations at both universities showed differences, but the slopes differed at University C and the intercepts at University A. At University C the relationship of a composite of high school grades and test scores to senior-year grades is stronger for Mexican-Americans than for other students. At University A, the strength of the relationship does not differ significantly between ethnic groups, but grades are significantly higher for other students than for Mexican-Americans.

These comparisons were all based on ACT scores. With SAT scores as the test variable, and with juniors and seniors combined at University A, the relationship was slightly weaker for Mexican-Americans than for other upper-division students. Thus differences in the prediction of upper-division grades are confused.

Comparisons by sex and institution

Although not a major purpose of the study, comparisons of prediction equations by sex and for two of the participating universities was possible. With rare exceptions, in all three universities, men had higher test scores, lower high school grades, and lower college grades than women, although the differences in predictability did not always favor the women. Men of whatever ethnic group may have some ground for complaining of bias in grading practices, a point that has been raised before (Caldwell & Hartnett, Note 2).

Comparisons of the prediction equations for freshman grades across institutions showed the standard errors to differ between universities among Mexican-Americans but not among other students (Table 1). Even though grades were higher at University B than at University A, particularly among the men, a common prediction equation would be defensible for the two institutions if sex differences are ignored.

Conclusions

The predictive relationships between a combination of high school grades and test scores as predictors and college grades as the criterion showed multiple correlation coefficients ranging, with a few exceptions, between the low .30's and the high .50's. With an occasional

exception that seemed, in most cases, attributable to an unusually low relationship between predictors and criterion for one of the groups being compared, the prediction equations for freshman, sophomore, and junior grade-point averages did not differ between Mexican-Americans and other students. Those for seniors differed but in contradictory ways at the two institutions.

For both groups, Mexican-Americans and others, high school grades almost always showed a higher relationship with college grades than did test scores. No systematic difference appeared in the relative importance of grades and test scores as predictors, as might be surmised if the tests were assumed to be poorer predictors for Mexican-Americans than for other students while the overall prediction coefficients were comparable.

These conclusions must be qualified, however, because of the nature of the data. The reasons, whatever they are, behind the missing data of both high school grades and admission test scores introduce an unknown effect into the prediction equations. Whether results similar to those reported would appear in truly representative samples of both Mexican-Americans and other students is a question that can only be speculated on. Yet the consistency of the results, with three of the four exceptions occurring where the samples were clearly unrepresentative in the test-grade relationships, supports a belief that whatever academic differences exist between Mexican-American and other students, they do not affect the size of the relationship between test scores and grades. Greater differences in the test-grade relationship are probably associated with institutions, programs, and sex.

Discussion

The present data provide no support for using test scores or grades differently in admitting Mexican-Americans than in admitting other students.

This result is not surprising in view of past failures to find consistent evidence of differential test validity (Flaugher, 1974). While the relationships between aptitude test scores and college achievement vary widely from college to college and study to study, the two sexes are the only groups for which consistent differences in those relationships have appeared. Nevertheless, the magnitudes of the multiple correlation coefficients for the combined sex groups, .32 at one university and .4[illegible] at another, are not great enough to produce much confidence in a college selection system based exclusively on prior grades and test scores. The absence of very low-scoring students from the samples examined, since they were not admitted to the universities, has reduced these coefficients from what they might have been had all applicants been admitted, but that reduction is probably not great in view of the substantial variability that remained in the samples. The standard deviations of the test scores are approximately the same as those of national normative samples.

Alternative doors to higher education should be provided if errors of prediction are not to work disproportionately against identifiable groups that consistently fall below other groups on the predictors of grades. In California, such alternatives are available through the community college system and through provision for a limited number of exceptions to admission based on the Eligibility Index. Whether they are adequate to the higher education needs of ethnic minorities is a complicated question far beyond the scope of the present paper. The broad issue of admission to college--an issue far more complex than the prediction of grades--deserves much of the attention that has tended to be narrowly focused on presumed differences in test-grade relationships, differences rarely found when looked for.

The challenges to standardized tests as criteria for admission that have been based on assertions that they are not adequate predictors of college performance for Mexican-Americans implicitly accept at least two questionable

beliefs about college admission. One is that the usual criterion, college grade-point average, is by itself an acceptable measure of college performance. Yet the grade-point average, in reflecting the common elements in a wide variety of faculty judgments about student performance, necessarily ignores qualitative differences in performance, such as sensitivity to the social or cultural implications of a process or phenomenon as opposed to analytical skill in determining its antecedents. While important, the grade-point average is far from adequate as the sole determinant of college performance.

The second questionable belief is that college performance, however measured, is by itself an acceptable basis for deciding who should be admitted to college. A common justification for this position is that grades are a measure not just of accomplishment but of the degree to which a student benefits from college. Admission procedures, such as that of the California state college system, that are based entirely on predicted college grades often rest on such a justification. The conclusion is then reached that public funds are most usefully spent on the higher education of those who can be predicted to perform well in terms of college grades.

But the benefits of going to college can be defined in several ways from the point of view of either society or the student. Society's most popular point of view at present is that everyone should be given the opportunity to go as far educationally as his or her abilities permit. This view does not help in social decisions because colleges vary enough in their standards that persons of almost any ability who are inclined to do so can find a college in which they can succeed. A more traditional view is that higher education is most usefully concentrated on the intellectually elite. The most capable students should receive the most public support for their educational advancement since they are the source of the scientific achievements on which society's advance depends. The reverse of that view, and equally defensible if different

initial premises are accepted, is that the greatest social benefit is achieved by encouraging the further education of low-achieving students who are attracted to higher education. This view arises from the assumption that the greatest educational gains are likely to be made by those who are inclined toward higher education but who start from a position of relatively poor achievement. Their education will therefore cause society as a whole to experience the greatest possible overall gain in intellectual level. Because low-achieving students are disproportionately from low-income families, and because the proportion of taxes paid by the poorest segment of the population is higher than the proportion of low-income students in public higher education, this policy would also ameliorate the present inequity through which the poorest people partially subsidize the education of the more affluent (Hansen & Weisbrod, 1969).

Each view of the social benefit of higher education described above implies a different procedure for college admissions, and those views do not exhaust the possibilities. They are described to point out the complexity of the issue of restricted admission to public institutions and some of the limitations of procedures based wholly on predicted grade-point averages as well as the limitations of criticisms of those procedures that rest wholly on questions of the relative accuracy of the predictions. The fairness of predictors of college grades is a legitimate and important issue in the context of present admission practices, but broader issues surround the appropriateness of those practices.

Test scores and prior grades have repeatedly been demonstrated to be the best available predictors of college success as measured by grades (Kendrick & Thomas, 1970) and of other measures of success such as persistence and attainment of degrees. Moreover, other student qualities, such as

personality characteristics, interests, and prior experiences, add little to predictions based only on tests and prior grades. Yet the limitations of test scores and prior grades as predictors, despite their preeminence over other predictors, as well as the limitations of college grades as criteria, make continued study of the effects and effectiveness of admission processes desirable. The report of the study on which the present admission procedure of the California State Colleges and University is based (The California State Colleges, 1969) pointed out the desirability of developing separate eligibility indexes for the different institutions in the system and for different academic programs in an institution. Reexamination of the predictive effectiveness of the Eligibility Index after the passage of several years would also be valuable. These practices of elaboration on prior knowledge of the test-grade relationships need not be comprehensive or exhaustive. Moderately frequent examination of predictive relationships in selected institutions or programs or for selected student subgroups based on characteristics other than ethnic group--age, sex, commuter status, or type of high school, for example--would, when cumulated over a period of time, provide current answers to questions that should be asked periodically.

More important in the admission process than the continual examination of predictive relationships between student characteristics and grades are considerations of the purposes of the institution, of the nature of the program in which the student hopes to enroll, of opportunities for students to repair areas of academic weakness and the likelihood that they will do so, of the particular intellectual needs of the university's constituencies, and of other aspects of the institution's operations. Institutional purposes are of primary importance. They cannot be acceptably defined as processing students through college with adequate grades, yet that is the only purpose consistent with the exclusive use of an eligibility index based entirely on

an applicant's predicted grade-point average. If institutional purposes include such goals as increasing the general level of intellectual competence of the citizens of the state, or raising the overall technical competence of the labor force, or promoting greater public understanding of social, political, and technical issues, then excluding students entirely on the basis of predicted grades has little justification. The evidence provided by tests and prior grades on the ability of an applicant to undertake a particular program of study is important in admission decisions, but it should not be required to carry the whole load.

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Table 1

Comparisons of Regression Equations Predicting Total Freshman GPA (Y) from ACT (X_1) and High School Grades (X_2)

University	Sample		N	$\bar{X}_1$	s_1	$\bar{X}_2$	s_2	$\bar{Y}$	s_y	R	SE	Significance Tests[a] SE	Slope	Int.
A	M-A	Men	38	20.1	4.6	2.79	0.35	1.93	0.85	.58	.71	NS	.01	--
A	Other	Men	65	22.9	4.1	2.87	0.38	2.24	0.59	.13	.59			
B	M-A	Men	89	18.8	5.5	2.63	0.48	2.43	0.53	.35	.50	NS	NS	NS
B	Other	Men	108	23.6	3.3	3.02	0.31	2.57	0.52	.29	.50			
A	M-A	Women	51	18.8	4.7	2.90	0.41	2.24	0.72	.56	.61	NS	NS	NS
A	Other	Women	68	21.9	3.4	3.12	0.34	2.65	0.55	.49	.49			
B	M-A	Women	74	16.9	5.4	2.81	0.48	2.46	0.67	.51	.58	NS	NS	NS
B	Other	Women	142	22.1	3.4	3.19	0.34	2.70	0.58	.49	.51			
A	M-A	Students	89	19.4	4.7	2.86	0.39	2.11	0.79	.55	.67	NS	.05	--
A	Other	Students	133	22.4	3.8	3.00	0.38	2.45	0.61	.32	.58			
B	M-A	Students	163	17.9	5.5	2.71	0.49	2.44	0.60	.43	.54	NS	NS	NS
B	Other	Students	250	22.8	3.4	3.12	0.34	2.64	0.56	.41	.51			

Note: The following abbreviations are used:

M-A Mexican-American
SE Standard error of estimate
Int. Intercept
NS Not significant

[a] Figures indicate level of statistical significance

Table 2

Comparisons of Regression Equations Predicting
Freshman GPA (Y) from SAT (X_1) and High School Grades (X_2)
at University B

Sample			N	$\bar{X}_1$	s_1	$\bar{X}_2$	s_2	$\bar{Y}$	s_y	R	SE	Significance Tests		
												SE	Slope	Int.
	M-A	Men	50	822	204	2.57	0.46	2.10	0.47	.13	.48			
	Other	Men	43	1059	168	3.06	0.37	2.65	0.71	.43	.66	.05	---	---
	M-A	Women	19	831	183	2.90	0.41	2.70	0.53	.37	.52			
	Other	Women	46	989	158	3.04	0.46	2.54	0.54	.28	.53	NS	NS	NS
All	M-A	Freshmen	69	824	199	2.66	0.47	2.27	0.56	.31	.54			
All	Other	Freshmen	89	1022	167	3.05	0.42	2.59	0.63	.32	.60	NS	NS	NS

Note. See note for Table 1.

Table 3

Comparisons of Regression Equations Predicting Sophomore GPA (Y) from ACT (X_1) and High School Grades (X_2) at University A

Sample			N	$\bar{X}_1$	s_1	$\bar{X}_2$	s_2	$\bar{Y}$	s_y	R	SE	Significance Tests		
												SE	Slope	Int.
	M-A	Men	29	20.2	4.7	2.82	0.36	2.26	0.64	.58	.54	NS	NS	NS
	Other	Men	62	23.0	4.1	2.89	0.38	2.38	0.59	.56	.50			
	M-A	Women	44	18.8	4.9	2.92	0.40	2.50	0.66	.46	.60	NS	NS	NS
	Other		60	22.4	3.4	3.11	0.35	2.65	0.59	.35	.56			
All	M-A	Sophomores	73	19.4	4.8	2.88	0.39	2.41	0.66	.48	.59	NS	NS	NS
All	Other	Sophomores	122	22.7	3.8	3.00	0.38	2.51	0.61	.49	.54			

Note. See note for Table 1.

Table 4

Comparisons of Regression Equations Predicting
Upper-division Grades (Y) from Test Scores (X_1) and High School Grades (X_2)

University	Sample		N	$\bar{X}_1$	s_1	$\bar{X}_2$	s_2	$\bar{Y}$	s_y	R	SE	Significance Tests: SE	Slope	Int.
C	M-A	Juniors	66	17.2[a]	4.7	2.66	0.57	2.49	0.87	.29	.85	NS	NS	NS
C	Other	Juniors	878	22.6	3.8	3.05	0.42	2.76	0.80	.32	.76			
A	M-A	Juniors	56	19.6[a]	5.2	2.86	0.43	2.48	0.69	.32	.66	NS	NS	NS
A	Other	Juniors	95	22.3	4.3	3.02	0.39	2.62	0.61	.31	.58			
C	M-A	Seniors	45	15.9[a]	5.3	2.50	0.57	2.54	1.01	.52	.80	NS	.05	—
C	Other	Seniors	600	23.3	3.8	3.10	0.41	2.88	0.76	.34	.72			
A	M-A	Seniors	44	20.3[a]	5.1	2.90	0.36	2.53	0.76	.11	.76	NS	NS	.05
A	Other	Seniors	80	22.6	3.4	3.01	0.40	2.87	0.68	.33	.65			
C	M-A	Upper Div.	57	959[b]	170	2.[illegible]	0.44	2.77	0.66	.41	.61	NS	.01	—
C	Other	Upper Div.	97	1044	186	3.11	0.33	2.73	0.71	.49	.63			

[a] X_1 = ACT Scores

[b] X_1 = SAT Scores

Note. See note for Table 1.